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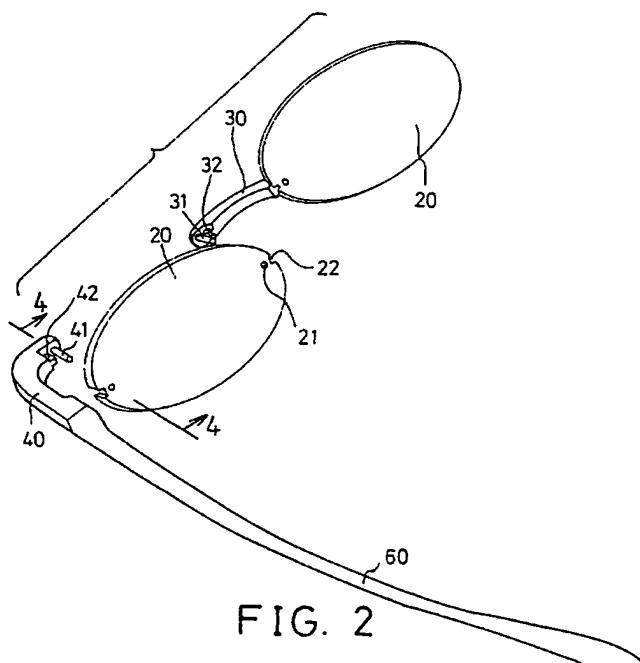
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(54) Method for securing spectacle members together

(57) A method for securing spectacle members (20, 30, 40) together includes forming an orifice (21) and an opening (22) in one of the spectacle members (20), forming and engaging an extension (31, 41) and a projection (32, 42) in the orifice (21) and the opening (22) of the spectacle member (20). The extension (31, 41)

or the projection (32, 42) is then melted or deformed to engage with the other spectacle member (20) and to secure the spectacle members (20, 30; 20, 40) together. The spectacle members (20, 30, 40) may be the lenses (20), the bridge (30) or the temples (40). The spectacle members (20, 30, 40) may be secured together without fasteners.



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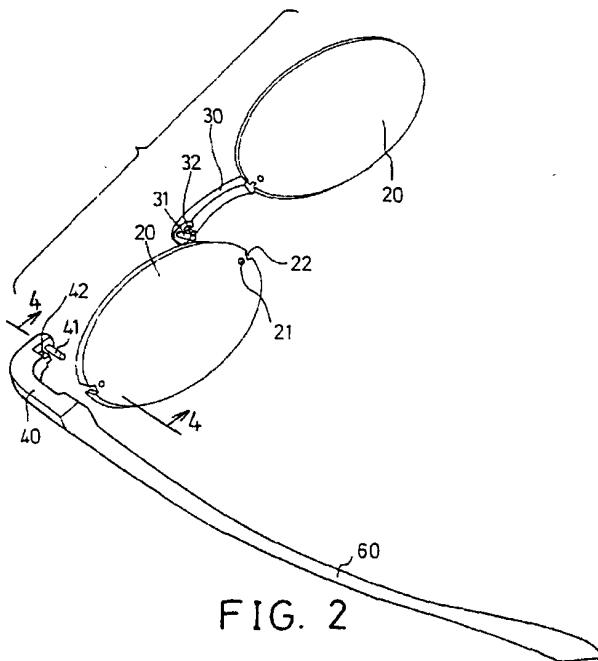


FIG. 2

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Description

[0001] The invention relates to a method for securing spectacle members, such as the legs or temples and the lenses, and/or the bridge and the lenses, together.

[0002] Typical spectacle frames, such as the rimless frames, comprise two lenses, a bridge secured between the lenses, and two legs or temples secured to the sides of the lenses. The spectacle members, including the lenses and the temples and/or the bridge, are secured together with adhesive materials or fasteners, and may not be solidly secured together. In addition, it takes a long time to apply the adhesive materials onto the spectacle members or to secure the fasteners.

[0003] The invention is to provide a method for securing the spectacle members, including the lenses and the temples and/or the bridge, together without fasteners.

FIG. 1 is a perspective view illustrating a spectacle frame having spectacle members to be secured together with a method of the invention;

FIG. 2 is a partial exploded view of the spectacle frame;

FIG. 3 is a partial plane and exploded view of the mating portions of the temple and the lens;

FIGS. 4, 5 are partial cross sectional views taken along lines 4-4, and 5-5 of FIGS. 2 and 1 respectively;

FIG. 6 is a perspective view showing the other application of the spectacle frame;

FIG. 7 is a partial exploded view of the spectacle frame as shown in FIG. 6;

FIG. 8 is a partial plane and exploded view of the mating portions of the temple and the lens; and

FIGS. 9 and 10 are partial cross sectional views taken along lines 9-9, and 10-10 of FIGS. 7 and 6.

[0004] Referring to FIGS. 1-5, a spectacle frame has two or more spectacle members to be secured together with a method of the invention. The spectacle frame comprises two lenses 20, a bridge 30 secured between the lenses 20, and/or two temples 40 secured to the corresponding side portions of the lenses 20 for pivotally supporting respective legs 60. The lenses 20 each includes one or both sides each having an orifice 21 and an opening 22. The opening 22 may include an open side portion (FIGS. 2, 3), or an enclosed or other shape separating from or communicating with the orifice 21 (FIGS. 6-10) of the lenses 20.

[0005] The bridge 30 includes two ends each having an extension 31 engaged through the orifices 21 of the lenses 20, and each having a projection 32 engaged into the corresponding opening 22 of the lenses 20 (FIGS. 3-5). The temples 40 each also includes an extension 41 engaged through the orifices 21 of the lenses 20, and a projection 42 engaged into the corresponding opening 22 of the lenses 20 (FIGS. 6-10). The engagement of the extensions 31, 41 and the projections 32, 42 of the

bridge 30 and/or of the temples 40 into the corresponding orifices 21 and the openings 22 of the lenses 20 may prevent the bridge 30 and/or the temples 40 from rotating relative to the lenses 20.

[0006] As shown in FIGS. 5, 10, after the extension 31, 41 of the bridge 30 and/or of the temple 30 is engaged through the orifice 21 of the lenses 20, the free end of the extension 31, 41 is welded or melted or deformed with a welder device 80 so as to form an enlarged head 43 which may engage with the lenses 20 to solidly secure the bridge 30 and/or the temples 40 and the lenses 20 together. Alternatively, the projections 32, 42 may be deformed to engage with lenses 20 and to secure the spectacle members 20, 30, 40 together, instead of the deformation of the extensions 31, 41.

[0007] The orifices 21 and the openings 22 may be formed in the lenses 20 with a machining or drilling or milling process, or may be formed when the lenses 20 are formed by such as a molding process. The extensions 31, 41 and the projections 32, 42 of the bridge 30 and/or of the temples 40 may be formed while the bridge 30 and/or the temples 40 are formed by such as a molding process, or may be formed separately and engaged into the bridge 30 and/or the temples 40 after the bridge 30 and/or the temples 40 are formed. The spectacle members, including the lenses 20, and the bridge 30, and the temples 40 are preferably made of such as the plastic materials, but not limit to this only, which may be easily molded and melted for allowing the spectacle members to be easily assembled together.

[0008] It is to be noted that the spectacle members 20, 30, 40 may be easily and quickly manufactured with a mass production process. In addition, the extensions 31, 41 and the projections 32, 42 of the bridge 30 and/or of the temples 40 may be easily and quickly engaged into the corresponding orifices 21 and the openings 22 of the lenses 20. The free ends of the extension 31, 41 of the bridge 30 and/or of the temple 40 may then be easily and quickly welded or melted with the welder device 80 so as to form the enlarged head 43 and to engage with the lenses 20 such that the spectacle members including the bridge 30 and/or the temples 40 and the lenses 20 may be solidly secured together. The provision and the engagement of the projections 32, 42 of the bridge 30 and/or of the temples 40 into the corresponding openings 22 of the lenses 20 may prevent the bridge 30 and/or the temples 40 from rotating relative to the lenses 20. An adhesive material may further, but not necessarily, be provided for further securing the spectacle members together.

Claims

- 55 1. A method for securing a first spectacle member and a second spectacle member together, the method comprising:

forming an orifice and an opening in the first spectacle member,
forming an extension and a projection on the second spectacle member,
engaging the extension and the projection of the second spectacle member into the orifice and the opening of the first spectacle member, and
deforming the extension to engage with the first spectacle member and to secure the first and the second spectacle members together.

2. A method as claimed in claim 1, wherein the opening of the first spectacle frame includes an open structure.

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3. A method as claimed in claim 1, wherein the opening of the first spectacle frame includes an enclosed structure,

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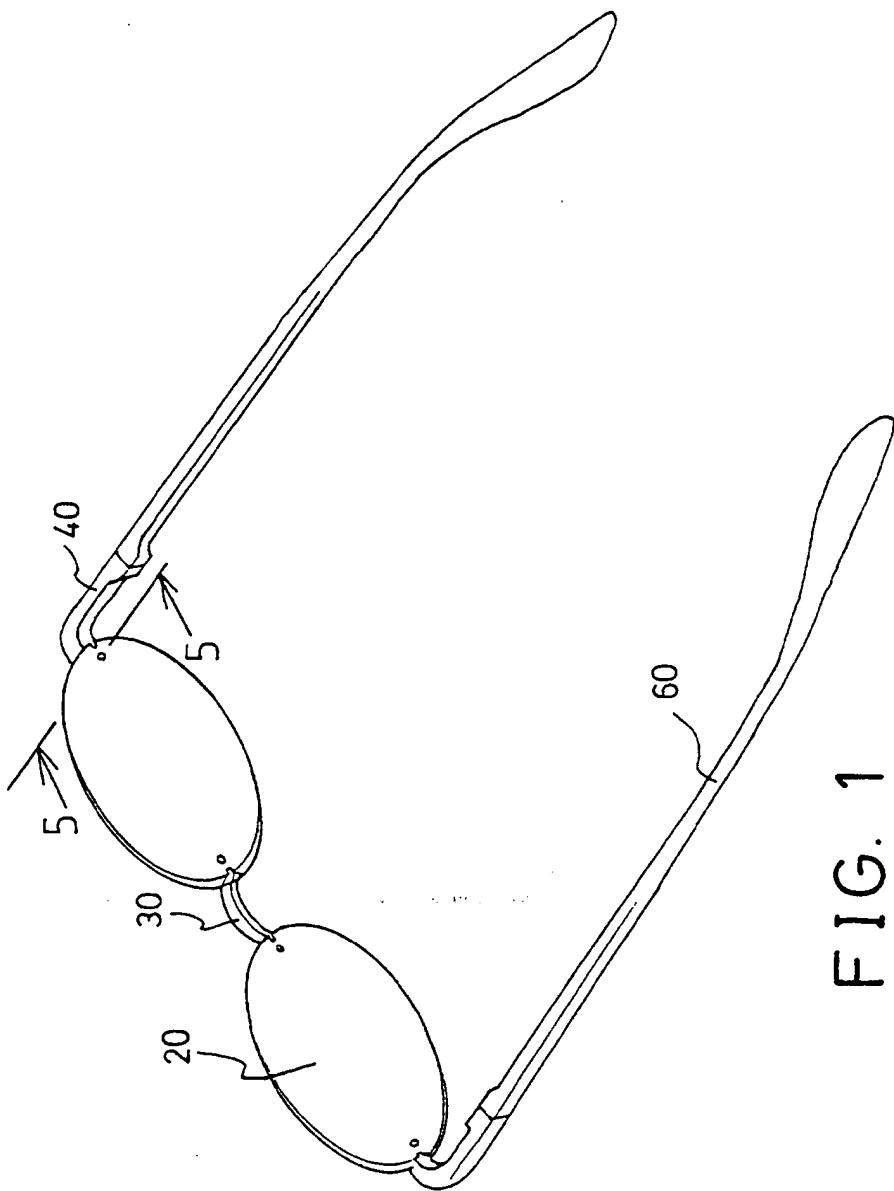


FIG. 1

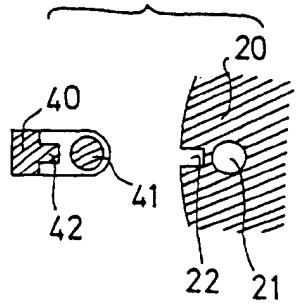
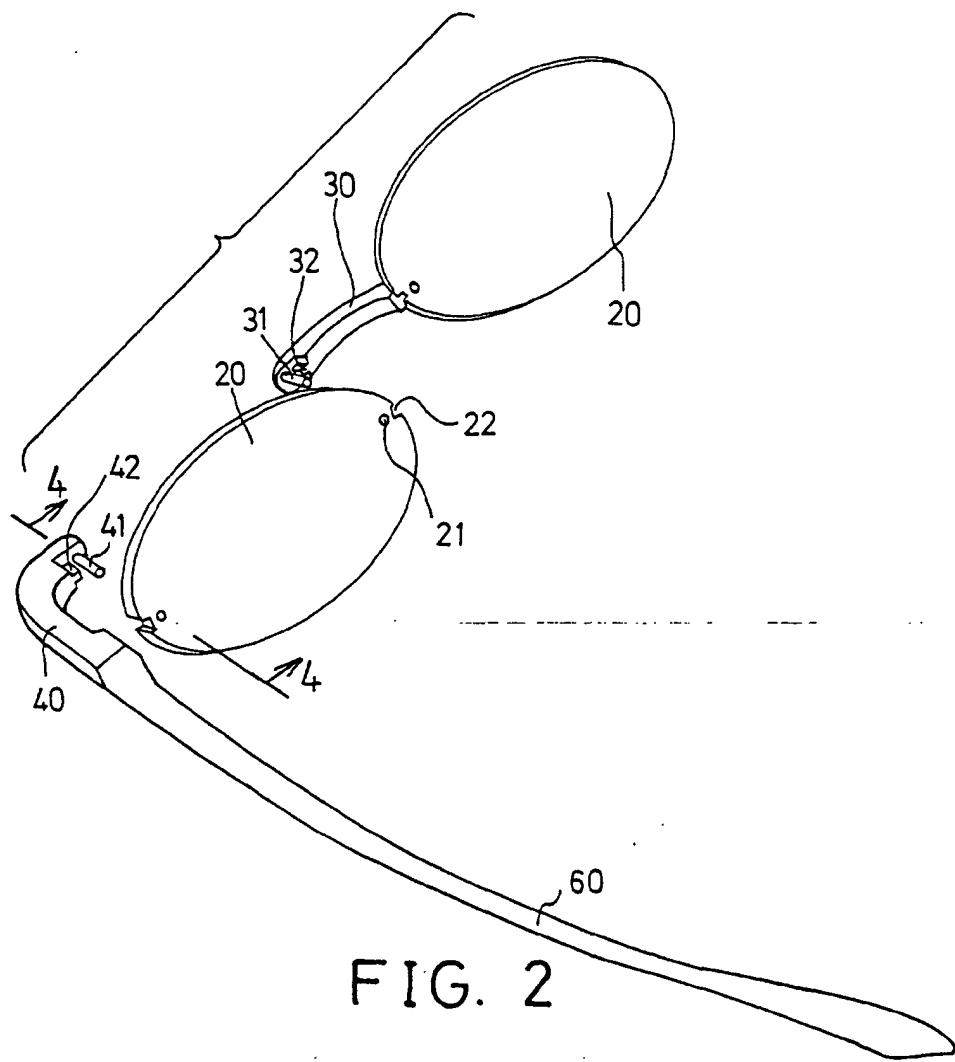


FIG. 3

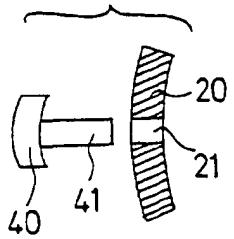


FIG. 4

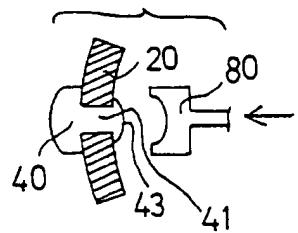


FIG. 5

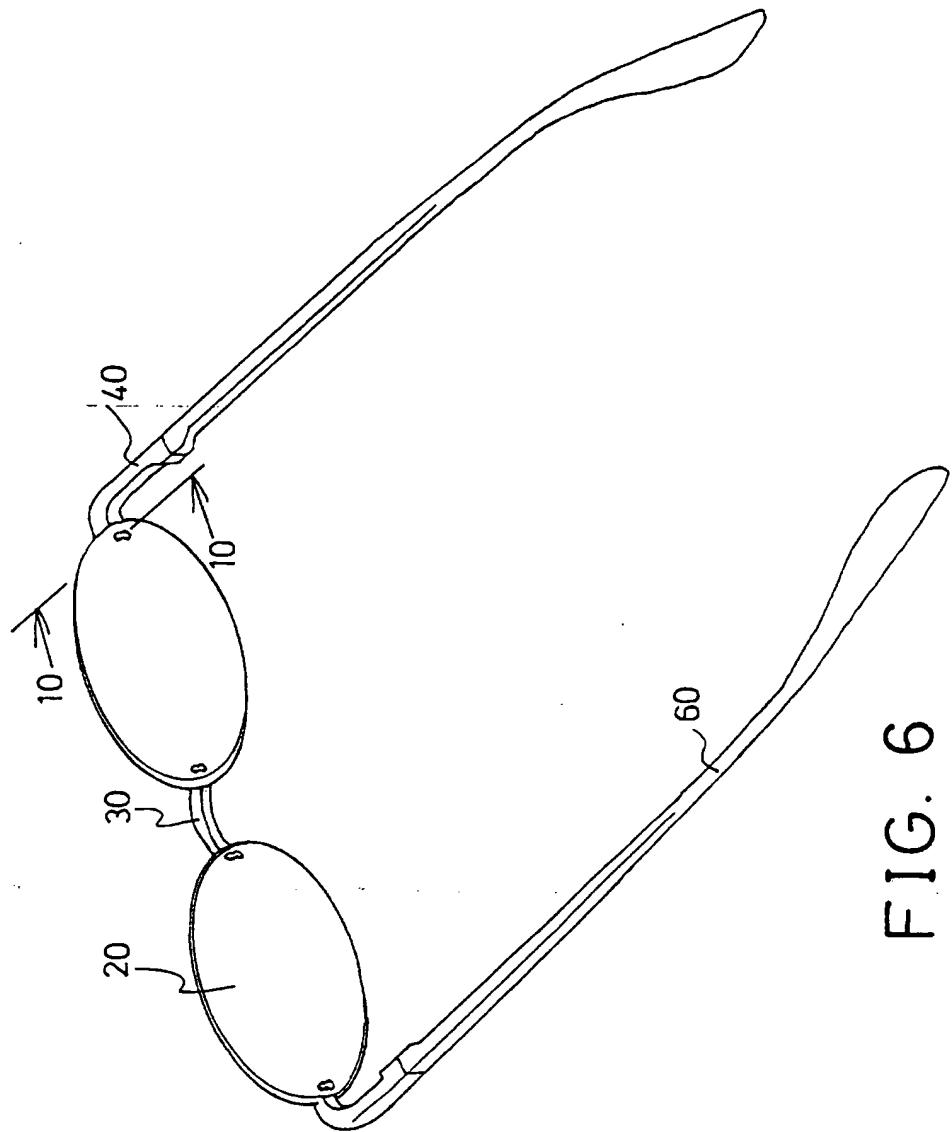


FIG. 6

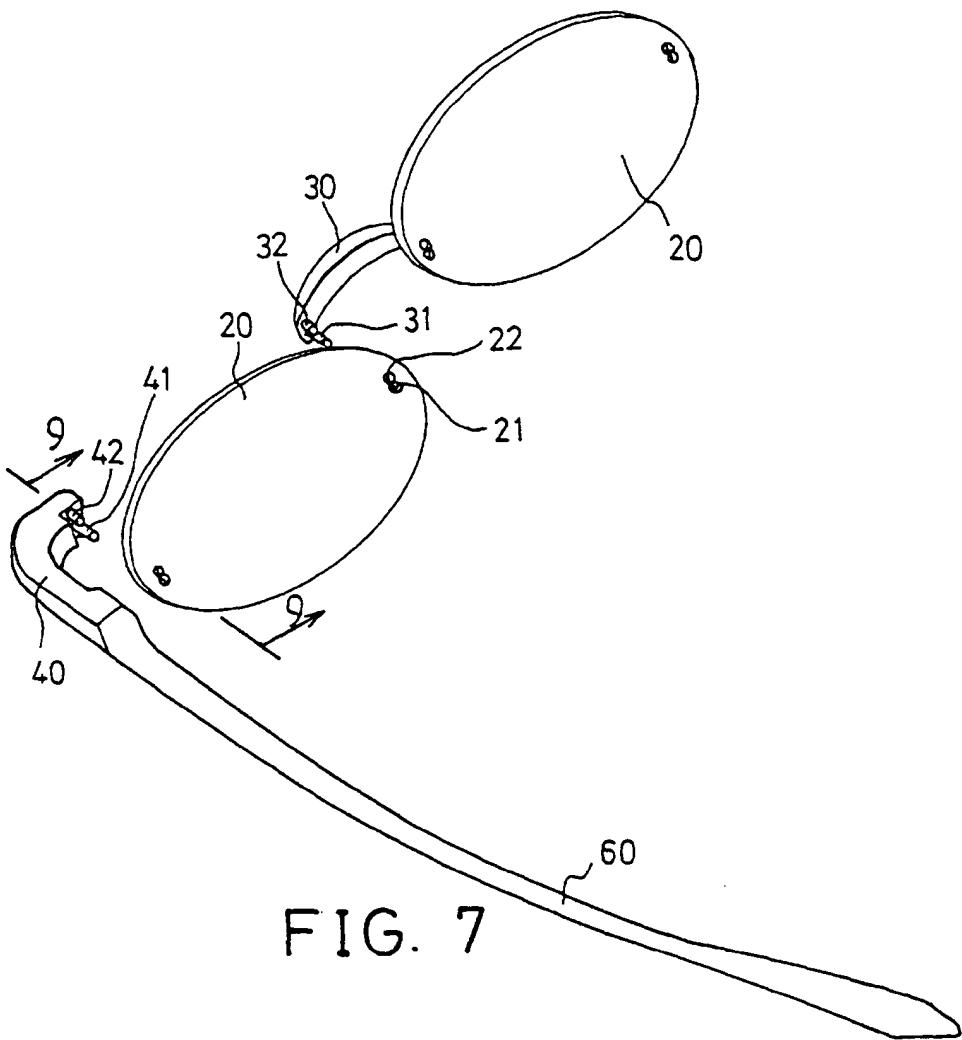


FIG. 7

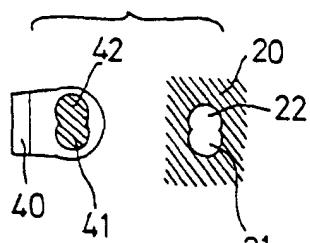


FIG. 8

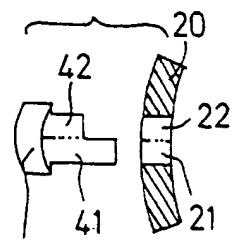


FIG. 9

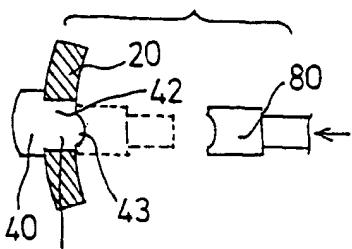


FIG. 10

European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 01 10 0058

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 6 007 199 A (YANG TIEN) 28 December 1999 (1999-12-28) * column 2, line 18 - column 3, line 16 * ---	1,2	G02C1/02
Y	GB 760 625 A (W. JAMESON) 7 November 1956 (1956-11-07) * page 2, line 5 - line 13; figure 2 * ---	1,2	
Y	US 5 771 086 A (HORIKAWA KAORU) 23 June 1998 (1998-06-23) * column 3, line 40 - column 4, line 8 * ---	1,2	
A	US 5 835 183 A (HYOI ISAO ET AL) 10 November 1998 (1998-11-10) * column 1, line 40 - column 2, line 45 * ---	1-3	
P,A	WO 00 48034 A (OPTIPROJECT S R L ;VECELLIO REANE SILVIO (IT)) 17 August 2000 (2000-08-17) * claims * ---	1-3	
P,A	WO 00 26716 A (MICROVISION OPTICAL INC) 11 May 2000 (2000-05-11) * page 3, line 3 - page 4, line 18 * ---	1,2	TECHNICAL FIELDS SEARCHED (Int.Cl.7) G02C
P,A	EP 0 978 749 A (TEMMING MARKUS) 9 February 2000 (2000-02-09) * column 1, line 35 - line 54 * ---	1	
A	WO 92 08158 A (HOUMAND JAN) 14 May 1992 (1992-05-14) * page 6, line 1 - line 10; claims 8-10 * ---	1	
The present search report has been drawn up for all claims			
Place of search THE HAGUE	Date of completion of the search 19 March 2001	Examiner CALLEWAERT, H	
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on or after the filing date D : document cited in the application L : document cited for other reasons S : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 10 0058

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-03-2001

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 6007199	A	28-12-1999	NONE		
GB 760625	A		NONE		
US 5771086	A	23-06-1998	JP	2986376 B	06-12-1999
			JP	9005675 A	10-01-1997
US 5835183	A	10-11-1998	CN	1089038 A	06-07-1994
			DE	69324231 D	06-05-1999
			DE	69324231 T	29-07-1999
			EP	0611978 A	24-08-1994
			EP	0863423 A	09-09-1998
			GB	2274728 A, B	03-08-1994
			HK	28797 A	21-03-1997
			WO	9402876 A	03-02-1994
			JP	11064799 A	05-03-1999
			JP	2852814 B	03-02-1999
			KR	159580 B	01-05-1999
WO 0048034	A	17-08-2000	AU	2125100 A	29-08-2000
			EP	1073927 A	07-02-2001
WO 0026716	A	11-05-2000	US	6024445 A	15-02-2000
			AU	1450100 A	22-05-2000
EP 0978749	A	09-02-2000	DE	19861093 A	24-02-2000
			EP	0978750 A	09-02-2000
			US	6070978 A	06-06-2000
WO 9208158	A	14-05-1992	AT	109573 T	15-08-1994
			AU	649087 B	12-05-1994
			AU	8860491 A	26-05-1992
			CA	2094698 A	26-04-1992
			DE	69103278 D	08-09-1994
			DE	69103278 T	24-11-1994
			DK	554341 T	12-09-1994
			EP	0554341 A	11-08-1993
			ES	2059159 T	01-11-1994
			FI	931832 A	23-06-1993
			JP	7074864 B	09-08-1995
			JP	6502259 T	10-03-1994
			NO	931502 A	24-06-1993
			US	5471257 A	28-11-1995

EPO FORM RO459

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